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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,493	03/07/2002	Shigemasa Takagi	01044/20004	6840

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Caesar Rivise Bernstein  
Cohen & Pokotilow  
Seven Penn Center 12th Floor  
1635 Market Street  
Philadelphia, PA 19103-2212

EXAMINER
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KNABLE, GEOFFREY L

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/070,493	TAKAGI, SHIGEMASA	
	<b>Examiner</b>	<b>Art Unit</b>	
	Geoffrey L. Knable	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 27-56 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27-56 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. <u>2-11-04</u> |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                                 |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3-7-2002</u> | 6) <input type="checkbox"/> Other: ____   |

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1. Claims 27-53 and 56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In the second to last line of claim 27, the phrase "with the cut edge fed along the blade groove of the drum" is awkward and confusing and arguably misleading. It might be clearer if for example the term "fed" were deleted. This same ambiguity is presented in the last line of claims 28 and 32, the second to last line of claim 31 and three lines from the end of claim 53.

The last 4 lines of claim 31 render the claim indefinite as this claim is directed to a device whereas these lines refer to certain process steps but do not explicitly describe or reference any means or devices to accomplish these steps, this making it difficult to determine what if any additional device features are required by these lines. For example, do these lines require a cutter for cutting the start edge? The same ambiguity is presented by claim 32.

In claims 36, 39, 40 and 42, no antecedent has been established for "said frame".

In claim 37, line 4, no antecedent has been established for "the relative movement mechanism".

In claims 44, 45 and 46, no antecedent has been established for "said drums" (i.e. plural).

In claim 47, line 3, the position switching mechanism is defined as "for rotatably supporting a pair of drums having different outer diameters" and opposite blade grooves. Applicant is advised however that this claim does not at present actually

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require two different drums with different diameters and groove directions but rather simply a support capable of supporting such. If the two different drums are to form part of the device, they should be more positively claimed.

Claim 52 defines how the ribbon is formed. It however is not clear what if any additional *device* features are required by this claim, i.e. does this require the various devices mentioned? – if so, this should be more clearly and positively set forth to avoid any ambiguity.

In the last four lines of claim 56, no antecedent has been established for “said drums”, “the belt materials”, or “the two drums”.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 27-34, 36-38 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 927,629 to Siegenthaler taken with GB 960,488.

EP '629 to Siegenthaler discloses a method and device for manufacturing tire belt material including a drum having a spiral blade groove 41/42 upon which is spirally wound rubber coated cord material (26) followed by spirally cutting along the blade groove. This reference thus generally teaches the claimed process/device of claims 27 and 31 but does not explicitly describe winding a ribbon having plural cords or the claimed specifics of the start end cutting angle. It should be noted however that it would

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appear that winding plural cords is contemplated in light of the reference to feeding "at least one cord" for winding on the drum (e.g. col. 2, lines 50-52).

GB '488 is also directed to a method and device for producing a ply material for a pneumatic tire that like EP '629 involves winding cord on a mandrel followed by cutting along a desired angle to remove the sheet. This reference further indicates an understanding that either a single embedded cord or plural embedded cords may suitably be wound to form the initial cylindrical sleeve – e.g. note page 2, lines 51-59. To wind either a rubberized single cord or plural cords would therefore have been seen to have been obvious alternatives to the ordinary artisan, it thus being an obvious alternative to wind a ribbon of plural cords in the EP '629 process. Such would also be expected to improve productivity due to a reduced number of windings required. Further, spirally winding the ribbon on the outer peripheral surface of the drum with bonding/pressing of lateral edges of said ribbon to each other would have been obvious in light of the teachings of GB '488 indicating an understanding of the importance of good bonding thereof - e.g. note page 2, lines 84-116; page 4, lines 50-59 as well as rollers 43 and 54.

As to the cut edge of the winding start end along the cutting groove angle, GB '488 suggests providing the winding start and finishing ends to "line up along the line to be cut" (page 3, lines 65-72), this being described as an alternative to having the ends not so lined up, in which case subsequent trimming would be required "to leave smooth edges." To cut the winding start and finishing edges to line up with the spiral cut angle

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would therefore have been obvious with an expectation of thereby avoiding the need to subsequently trim.

As to claims 28 and 32, as noted above, aligning both the start and finish ends along the blade cut angle would have been obvious. Further, it would have been obvious to align the start end for a subsequent winding along the cut angle for the same reasons it is considered obvious to so align the start end of the preceding winding. As to claim 29, it would have been readily apparent or certainly obvious that the drum diameter, width, winding pitch and cutting pitch would have been selected based upon the belt material dimensions desired – e.g. note also page 4, lines 42-56 of EP '620. As to claim 30, note page 5, lines 31-35 of EP '620. As to claim 33, both EP '620 and GB '488 clearly suggest providing a relatively movable winding guide. As to claim 34, as already noted, a presser roller to help stick adjacent ribbon edges would have been obvious in light of the teachings of GB '488. As to claim 36, as cutting is clearly a necessary step, a cutting mechanism would have been obvious - EP '620 also clearly suggests that an automatic cutting device can be used (col. 5, lines 17-19). As to claim 37, EP '620 suggests a cutting mechanism adapted to be moved toward and away from the drum (along direction 19) and relatively movable along the rotating drum. As to claim 38, the cutter engages the blade groove (e.g. col. 5, lines 21+). Claim 53 essentially is the same as claim 27 except there is no requirement for a blade groove – this claim is therefore rejected for the same reasons as already set forth with respect to claim 27.

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4. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 927,629 to Siegenthaler taken with GB 960,488 as applied above, and further in view of Ishii (US 4,812,196).

As to claim 35, EP '629 does not seem to suggest use of a grabbing mechanism for the winding start end, this reference likely relying upon the rubber tackiness to hold the material. It however is well understood by the ordinary artisan that some means are necessary to assure that the winding start end of a rubber material is held to the drum, use of various means including vacuum and presser means as well as the rubber's own stickiness being all well known in this art and obvious alternatives – Ishii is exemplary – note esp. col. 1, lines 10-46.

5. Claims 39-41 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 927,629 to Siegenthaler taken with GB 960,488 as applied above, and further in view of Perkins (US 5,192,390) and/or Goodfellow (US 5,114,511).

As to claims 39-41 and 54, EP '629 describes that the cut material is unwound from the drum but does not provides details of this operation and thus does not suggest use of a peeling mechanism/tray as claimed. Perkins is also directed to forming a tire ply by spiral winding of a ribbon followed by cutting and in particular suggests the inclusion of means to raise a lip of the material at the cut as well as a clamp and moving tray to peel and remove the ply – note esp. fig. 9. Similarly, Goodfellow is directed to forming a tire ply by spiral winding followed by cutting (off drum 14) and in particular suggests the inclusion of a moving tray to peel and remove the ply – note esp. figs. 2-3. It should additionally be noted that although the cut is illustrated as axial, the

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Goodfellow reference is clearly not so limited and in particular includes helical cutting (e.g. col. 4, lines 60-64). To include a mechanism to peel the ply as well as a synchronized moving tray (obviously movable in a direction intersecting the drum axis) to support the ply while being peeled is known and conventional for very similar processes and would therefore have been a prima facie obvious way to effect ply removal in this art.

6. Claims 42, 43 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 927,629 to Siegenthaler taken with GB 960,488 as applied above, and further in view of JP 59-22721 to Mitsubishi Rayon.

EP '629 does not suggest winding an edge tape. JP '721 is also directed to forming a bias fabric by winding on a drum followed by spiral cutting and in particular suggests winding a rubber tape along the cut line 4 prior to cutting, this being described as enabling ease of cutting as well as stable ply dimensions – note the abstracts and figures. To include a mechanism adapted to apply an edge tape along the spiral groove prior to cutting would therefore have been obvious with an expectation of easing the cutting operation as well as helping stabilize the ply material, i.e. it would have been expected to help hold adjacent convolutions together, particularly after cutting.

7. Claims 44-48 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 927,629 to Siegenthaler taken with GB 960,488 as applied above, and further in view of Converse et al. (US 1,337,690).

As to claim 44, EP '629 indicates that the spiral cutting groove is opposite to the winding spiral and would seem to provide a movement mechanism for both the cutter



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and winder that would allow winding or cutting in either direction. This however is not explicitly described as such. Converse et al. is also directed to forming tire plies by spiral winding rubberized cord on a drum followed by spiral cutting the ply off the drum and in particular indicates that it is desirable to provide a plurality of drums rather than a single drum so that one drum may be wound while the other is having the ply cut and removed from the drum so as to improve productivity – note esp. page 1, lines 10-45 and page 2, lines 14-20. Further, the teachings of Converse et al. would suggest that when winding with two drums, it is particularly desirable to wind in both axial directions – note page 1, line 105 – page 2, line 14. To include plural drums in the EP '629 process/device rather than a single drum, as well as a winding means capable of winding in both directions, would therefore have been obvious motivated by the expectation of improved productive capacity of the machine. In light of the above noted EP '629 suggestion that the spiral cutting groove should be opposite to the winding spiral, the inclusion of cutting means that is capable of cutting in either direction would likewise have been obvious.

As to claims 45-48 and 56, as noted above, the inclusion of plural drums rather than a single drum so that one drum may be wound while the other is having the ply cut and removed from the drum would have been obvious so as to improve productivity – note esp. page 1, lines 10-45 and page 2, lines 14-20 of Converse et al. Further, Converse et al. also clearly suggests a position switching mechanism as claimed. A capability of winding/cutting in opposite directions would also have been obvious for reasons noted above.

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8. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 927,629 to Siegenthaler taken with GB 960,488 as applied above, and further in view of Bayne (US 885219).

As to claim 52, EP '629 as well as GB '488 provide rubber coated cords but do not suggest beforehand untwisting to coat each individual strand and retwisting. Bayne et al. clearly teaches untwisting, coating with rubber and then retwisting in order to form cords that will be subsequently formed into fabrics, this being said to improve fabric flexibility and durability by assuring that the individual strands do not frictionally contact one another (note the entire reference). To so treat cords to be formed into a ribbon for winding would therefore have been prima facie obvious and lead to an expected improved durability.

9. Claims 49-51 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.


Although the applied prior art is considered to render obvious a device for manufacturing a belt material for a tire as defined in claims 31/39/40 that broadly includes a movable tray for the peeled belt material, none of the closest prior art would teach or render obvious the additional requirement of claims 49-51 for a moving table disposed in the tray transportation mechanism for movement corresponding to the drum in a direction intersecting the axial line thereof with a turntable pivotally supported on the moving table, the tray being carried on the turntable.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey L. Knable whose telephone number is 571-272-1220. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Geoffrey L. Knable  
Primary Examiner  
Art Unit 1733

G. Knable  
February 14, 2004